Oak & sycamore chest of drawers

Kevin Ley continues his oak & sycamore furniture projects

The clients brief was for two similar chests of drawers: one 1.2m wide the other 900mm wide.

We arranged a meeting at my workshop to finalise the designs, and choose the type of timber and the finish.

They particularly liked a seven drawer chest in sycamore I had already made with fumed oak drawer fronts, and decided to base the design on that combination of timbers.

Various other design details were also decided including cedar of Lebanon drawer casings for the lovely scent and insect repellent properties. I was asked to design rectangular contrasting handles for the drawers.

The designs were kept light and simple with the carcasses in sycamore, and just the drawer fronts of the chests in fumed oak.

A curved inset plinth was applied to all the pieces, the curve of the plinth reflected in the underside edges of the rectangular handles.

The tops of all the pieces were chamfered on the underside of the overhanging edges, again to lighten the effect.

An acrylic satin finish was chosen to keep the creamy colour of the sycamore and reduce yellowing.

Timber choice and selection

Having had problems finding decent 25mm boards of sycamore without penetrating stick marks, I eventually found some 32mm boards with no staining, from which I could deep saw what I needed.

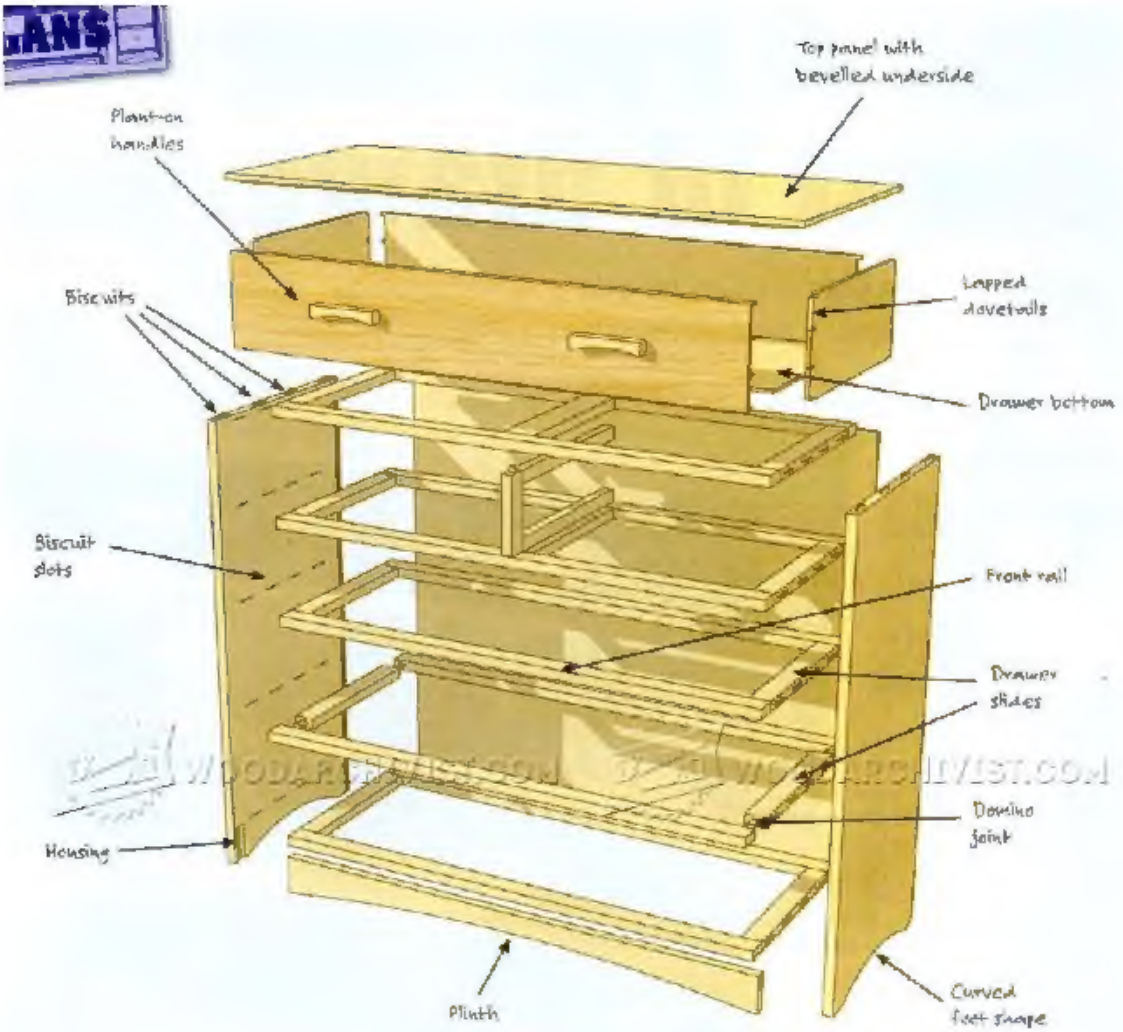
The chest that the clients had seen in my cottage had quarter sawn fumed English oak drawer fronts.

They had particularly liked the 'flash' of the medullary rays and the figure of the oak. I managed to find top quality English oak at Will Bullough's yard and selected some good middle boards out of a stack of through and through cut boards.

Very little oak is truly quarter sawn these days but the middle boards in a through and through cut stack are effectively 'quarter sawn' as the grain runs vertically through the thickness of the board.

There is, of course, a fee for selecting the best boards from a stack!

The turning of oak was covered in *Woodworking Plans & Projects*, issue 41, page 37, to tie in with the fumed and woven oak panel linen basket.


Top panel with bevelled underside
Plantation handles
Biscuits
Lapped dovetails
Drawer bottom
Biscuit slots
Front rail
Drawer slides
Dowling joint
Housing
Plinth
Curved foot shape


Overhanging top
Divider
Shaped drawer pull

Marking out drawer casings from a large board of cedar of Lebanon

Deep sawing drawer casings

CUPPING

Deep sawing kiln dried boards sometimes causes 'cupping' or curving across the width of the board. It is caused by the outside faces of kiln dried boards starting to absorb moisture as soon as they come out of the kiln, swelling and putting the outside face in tension. While both outside faces are in tension together, the board does not move. However, when it is deep sawn through the thickness, the drier un-tensioned centre is exposed and the tension on the outside face released, expanding (swelling) that face thus cupping the board.

As I knew I was deep sawing both the sycamore and the cedar, I asked for the timber to be put back in the kiln for a few days to dry the outside faces. Fortunately they had room with another batch that was going through and were able to accommodate me. It worked and I had very small amounts of cupping in the sycamore, and none in the cedar.

1 The cedar of Lebanon also came from Will's yard – lovely wide boards with few of the characteristic large knots and a generous 25mm plus thickness.

All the components for the whole suite were cut out at the same time, working down from the largest to the smallest pieces. The sycamore was deep sawn to 25mm thickness and the 12mm waste slabs put in the log store for future use.

2 The drawer casings would be a finished thickness of 15mm, so pieces were marked and cut from the large cedar of Lebanon boards and then deep sawn in two to give 12mm thickness pieces that could be thicknessed to size.

3 After cutting all the components to size, I sticked and stacked them with a dehumidifier to take the moisture content even lower.

Oversize components sticked and stacked near dehumidifier

Biscuit jointing the frames

Slotting frame components for Dominos

Frame in clamps

Construction

The sides and top were made up from narrower pieces, butt jointed together, glued and clamped. They were trimmed to size, and the housings cut in the inside rear faces to take the ply back.

Biscuit slots and pockets were cut in the top edges of the sides for the joint to the top, and biscuit slots cut for the drawer frames. A curve was cut one end to form the plinth and a housing cut on the inside front face for the front plinth.

4 Biscuit slots were cut in the top for the joint to the sides, and a housing cut on the rear inside face for the ply back. The underside of the overhang was chamfered with an Erbauer power planer – this is a relatively cheap power tool but I find it very safe and effective for this sort of waste removal. All these components were power sanded to a finish.

Frames

5–6 The frame pieces were cut to size and jointed with the Domino jointer, glued, clamped, checked for square, and left to set. The Domino joints at the rear of the frames were left dry and a 3mm expansion gap left to allow for seasonal movement in the sides.

7 Biscuit slots and screw pockets were cut for the joint to the sides.

Cutting pocket screw holes in the frames

Front plinth and back

8 A piece of sycamore was cut to shape and finished for the front plinth, and some 6mm sycamore faced ply cut for the back.

Cutting plinth curve

Sides, frames, and plinth clamped up

Top clamped up, and back pinned and glued in

Sanding the front of the frames and drawer dividers flush

Marking pin depth

Marking dovetails with a Trend Point-2-Point Jig

Assembly

9 The frames, sides, and plinth were given a hand sanding on the inside faces, and the frames and sides dry fitted to check. Glue was applied to the slots and biscuits, and the carcass assembled.

10–11 Clamps were applied – all was checked for square, adjusted where necessary, and the pocket screws driven home. The back housings, biscuit slots, and biscuits in the top and sides were then glued up, and the top tapped into place. Glue was applied to the edge of the back rails, the back was fitted, checked for square and the back pinned. After the glue had dried, the front rails were sanded flush.

Drawers

The fronts were sawn slightly over height and length, and offered up to the apertures. They were then planed to height, checking for fit at each end, the back edge slightly bevelled to fit part way into the opening.

One end was then cut square on the radial arm saw and adjustments for a similar fit made with a block plane.

The length was then marked on the other end with a scalpel, cut 1.5mm on the waste side, and again trimmed with a block plane to fit.

The drawer front was used as a template to mark the exact length of the back. The height was measured from the base to 6mm below the side height.

The sides were cut to length leaving 6mm clearance from the back of the cabinet. The height was sawn oversize and planed to a running fit.

The bases were cut from cedar faced 6mm MDF let into housings in the front and sides, and glued and pinned to the back. Sheet material is lighter and thinner than a solid base.

Marking the drawer joints: Depth

12 One marking gauge was set to the exact thickness of the sides and back, and another to the depth of the lap dovetails on the front. These were used to mark the depth of the tails and pins on both faces of the sides and backs, and the end and inside face of the front.

Spacing

13 Using a Trend Point 2-Point jig to space the tails, I marked them on the sides, ensuring that the base housing was covered by a tail.

Cutting tails on several drawer sides

Marking backs from fronts

Pins routed out and finished

Chopping out dovetail sockets

14 Several sides were taped together, the top one marked and the tails cut out together on the bandsaw, cleaned up with a paring chisel, and offered up to their respective backs and fronts.

15 Using the tails as a guide, the pins are marked very carefully with a scalpel.

16–17 The bulk of the waste was removed from the front sockets, and between the pins on the backs. I prefer to do this with a router, but obviously use whichever method you prefer.

All were trimmed to the scalpel line with a sharp paring chisel, and the joints partially inserted to confirm the fit.

18 Having cut all the drawer components, they were stacked ready for assembly.

Assembly

The levite faces were hand sanded, with just the right amount of glue applied to the base housings and the top edges of the dovetail sockets.

The base was pushed into the housing in the front, and the sides fitted to the front and tapped partially home.

The under edge of the back was glued up and the sides partially fitted to it.

The joints were tapped home and a sash clamp used to pull them up tight and force out any excess glue. The diagonals were checked, adjustments made for square and wind, the back pinned, and then the drawer left to set.

Drawer components stacked ready for assembly

Planing high spots off drawers

Checking drawer fit with feeler gauges

Shaping handle on radial arm saw sanding attachment

Sanding handles on an inverted sander

Rounding over the handle edges

Fitting

19-20 Once set, the outside faces of the joints were planed flush, a temporary pull fitted, and the drawer offered up to the aperture. High spots and areas of binding were removed with a smoothing plane and, when the fit was satisfactory, the outsides were given a final sanding and a touch of candle wax to ensure easy running.

Handles

The rectangular handles were cut to size and a finger recess cut with a straight cutter on the router table.

21-22 The under curve was cut on the bandsaw and finished on the radial arm saw drum sander. The handles were finished on an inverted belt sander.

23 All the edges were rounded over using a 6mm radius cutter on the router table.

Finish

As most of the sanding had been done prior to assembly, it now only remained to hand sand out any clamping marks and blemishes.

The surfaces were lightly sprayed with water to raise the grain and left to dry, then given a final hand sanding with 320grit.

Three coats of a water based satin finish acrylic varnish were then applied with a sponge, and lightly sanded between coats to remove nibs.

Conclusion

These chests were quite impressive when finished – the contrast in the woods worked well. They fitted nicely into their home and the clients were pleased. ■

Contacts

- Erbauer power planer
  Screwfix: 0500 414141
  www.screwfix.com
- Native hardwood timber
  Will Bullough: 01497 831656
  Email: will@whitneysawmills.com
- Routers and jigs
  Trend: 0800 487353
  www.trendmachinery.co.uk
- Liberon water based acrylic floor varnish and other finishing products
  01797 367555 www.liberon.co.uk

Drawers made simple

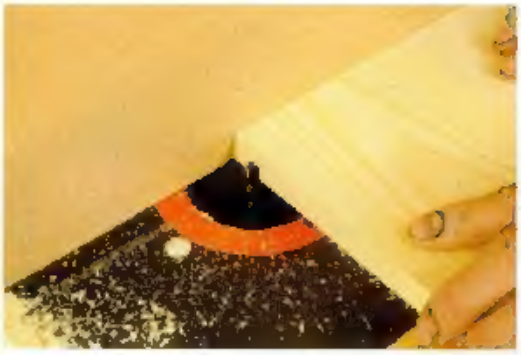
Don't want dovetails? **Anthony Bailey** shows you an alternative

Drawers don't need to be built using dovetails, although this method is very strong. Our antidote to this more complex way of doing things is this simple, easy method that just requires well prepared timber, thin ply, and a router table, plus a straight cutter or a groover. Follow our easy-to-follow guide and well turned out drawers are sure to follow.

"Most modern built drawers have a 'planted-on' front panel, which neatly hides the drawer box joints"

The key to all drawer boxes, whatever jointing method used, is that the sides fit strongly enough onto the drawer front that it can resist the strain of opening the drawer each time. With dovetails, the front set can be 'blind' – that is they fit into the ends of the front panel so they cannot be seen when the drawer is closed. With other jointing methods, this isn't possible, and the result would be an ugly looking front face with the end grain of the side pieces on display. To counter this problem, most modern built drawers have a 'planted-on' front panel, which neatly hides the drawer box joints. This extra thickness needs to be allowed for when calculating the drawer sizes. Allowance also needs to be made on the drawer width if there are modern drawer runners instead of the traditional construction. Modern runners typically take up an extra 25mm of width – the amount the drawer box needs to reduce – and the plant-on front needs to be wider than the box to hide the resulting gap.

1 Work out the overall size of the drawer box – the back and front will be tongued into the sides, so take off the drawer sides' thickness and add back the tongue length needed to create the tongue and groove joint. A good starting point is to use a 6.4mm straight cutter to create the groove and penetrate no deeper than 7-8mm if the stock thickness is 18mm. You will now have the length of the front and back components. The sides, of course, run fully from front to back.



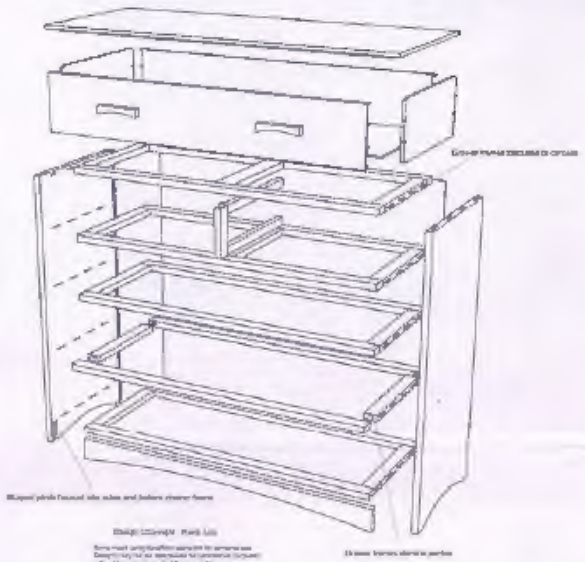
2 Set up the router table for machining the grooves. If you use a straight cutter, the components will be lying down, if you use a groover mounted on an arbor, they will need to be machined in the upright position. You need to fit a through fence for a continuous running surface, and a square push block or mitre protractor to keep the workpieces running square as you push them over the cutter.

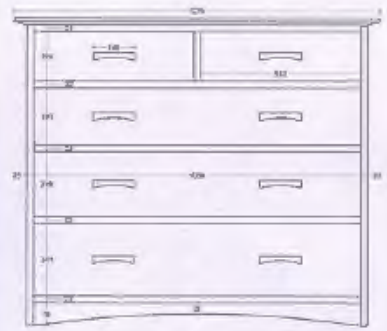
3 Once all the side components are grooved, the same cutter can be used to make a groove in the sides, front and back to accept the drawer bottom.

4 Now fit a 16mm or 19mm straight cutter, or even better, a Wealden tenoning cutter in the router table. Set it up to machine the tongues on the front and back panels. Do a test on an offcut first to ensure a nice tight fit.

5 Cut the drawer bottom ensuring it is a fairly close fit in the drawer box, as it will help to hold it square. Now glue up the drawer box with the bottom in place, clamp and check for square, and leave to set.

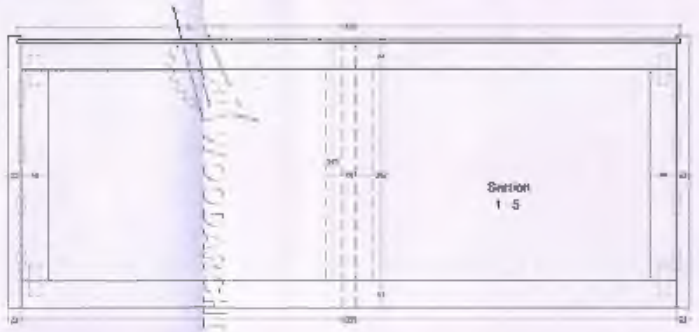
6 Cut and sand a plain on front to suit the drawer aperture size, giving no more than 2mm clearance on any edge, and once the drawer is fitted, screw the front on from the inside. Most handles or knobs are fixed from the back so do this first. Your drawer box is now complete. ■





Front Elevation
1 : 10

Side Elevation
1 : 10



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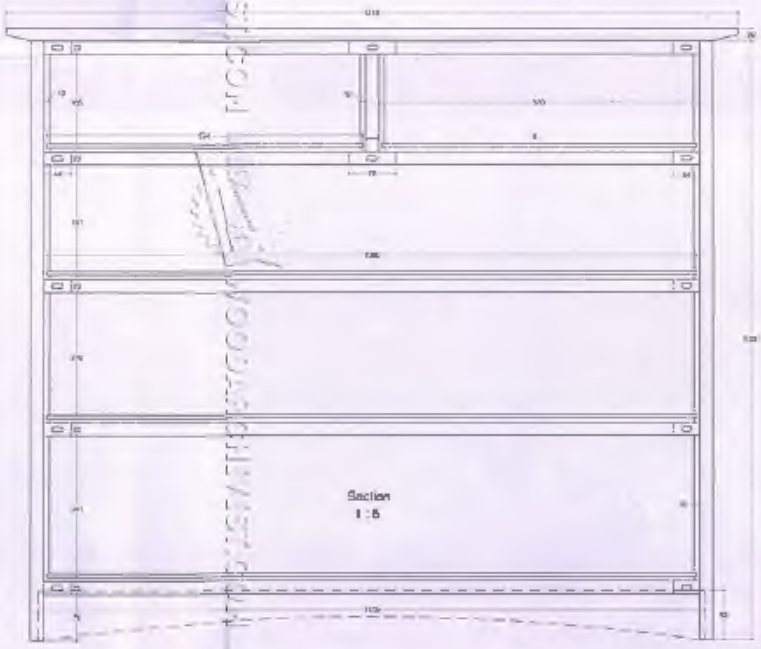

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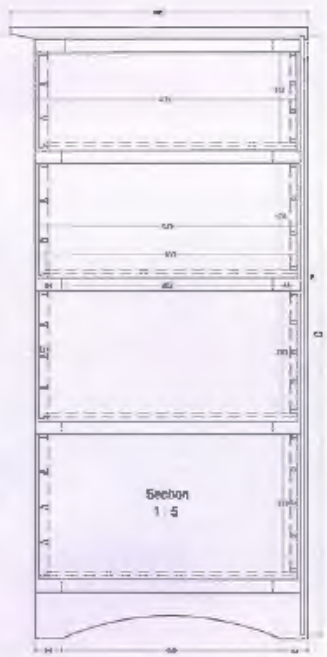

Section
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Cutting List

TOP	1 @ 1218 x 495 x 25
SIDES	2 @ 1000 x 454 x 22
PLINTH	1 @ 1194 x 94 x 22
BACK	1 @ 1102 x 1000 x 9
DRAWER Models	
DRAWER RAILS	10 @ 1089 x 44 x 22
DRAWER RUNNERS	10 @ 153 x 44 x 22
CENTRAL RUNNER/GUIDE	2 @ 453 x 76 x 22
DIVIDER	1 @ 913 x 44 x 22
GUIDES	2 @ 365 x 25 x 22